DOCUMENT RESUME

ED 261 245 CE 042 474

TITLE	Graphic Arts 12-22-32. Industrial Education Curriculum.
INSTITUTION	Alberta Dept. of Education, Edmonton.
PUB DATE	84
NOTE	77p.
PUB TYPE	Guides - Classroom Use - Guides (For Teachers) (052)
EDRS PRICE	MF01/PC04 Plus Postage.
DESCRIPTORS	Behavioral Objectives; Course Content; *Graphic Arts; High Schools; *Industrial Arts; *Learning Activities; Learning Modules; Occupational Information; Photocomposition; Photography; State Curriculum Guides; Teaching Methods; *Trade and Industrial Education; Visual Arts; Vocational Education
IDENTIFIERS	*Alberta

ABSTRACT

This curriculum guide contains learning module outlines for teaching a series of courses in graphic arts in high schools in Alberta. Each module provides learning experiences selected to develop basic competence in trades in the graphic arts field. Each module consists of an introduction, objectives, learning resources list, content summary, and a number of topics, each with a generalization and concepts/subconcepts related to learning tasks. The modules cover the following topics: a general introductory course; image creation and composition; offset press operation; photography; process camera, stripping, and platemaking; bindery operations; and graphic arts special topics, on three levels. An introductory section explains the industrial education program and the graphic arts courses in Alberta. (KC)

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ACKNOWLEDGEMENTS

Alberta Education acknowledges with appreciation the contribution of the following Ad Hoc Committee members to the preparation of this guide.

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NOTE: This publication is a service document. The advice and direction offered is suggestive except where it duplicates or paraphrases the contents of the Program of Studies. In these instances, the content is in the same distinctive manner as this notice so that the reader may readily identify all prescriptive statements or segments of the document.

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INDUSTRIAL EDUCATION

RATIONALE

Industrial Education is a program consisting of courses which provide a continuum of experiences, starting with exploratory activities in the junior high school and expanding in the high school to the development of skills related to career fields. This development of the student's skills is planned for through courses in industrial and vocational education culminating in on-the-job work experience, or entry into a job or post-high school institution for further education.

The program consists of courses ranging from those designed for an exploration of the technologies and trade areas to units of practical preparation for a career. In the process the courses develop the student's self-knowledge, talents and skills.

For information on sequencing and course description, refer to the "Industrial Education Manual for Guidance to Teachers, Counsellors and Administrators".

PROGRAMS

There are two parts to the Industrial Education program. The first part consists of the I.E. 10, 20, 30 series of courses and is designed for career orientation. These courses were developed primarily for students in laboratories that utilize the multiple activity approach as found in most smaller schools, but they can be taught in unit shops as well.

The second part consists of the I.E. 12, 22, 32 series of courses and is intended for career development. The courses are planned for use in schools where facilities are available to teach specific occupational areas.

Students may progress from the I.E. 10, 20, 30 series to the 22 level courses upon meeting specified basic prerequisites or upon recommendation of their principal.

Both sections of the program focus on six career fields. These are:

Graphic Communications
Mechanics
Construction and Fabrication
Electricity-Electronics
Personal Services
Horticulture

The I.E. 10, 20, 30 courses consist of a number of 25-hour modules related to the career fields while the I.E. 12, 22, 32 courses consist of a number of 25-hour modules of specific occupational content. Completion of seven five credit modules qualifies the student for recognition by the Apprenticeship Branch for credit towards a journeyman's certificate.

It is left to the administrators of the school to offer the courses or combination of courses best suited to the needs and interests of the students and the financial resources of the district.

Courses offered at the 22 and 32 level have to meet special criteria for staff and facilities. The Industrial Education Consultant must authorize these in order to qualify the students for vocational grants.

OBJECTIVES OF INDUSTRIAL EDUCATION

The Industrial Education Program can help achieve the Goals of Schooling and Education. The course objectives are more focused and give direction to the teacher.

The objectives of Industrial Education are classified in three areas with the following purposes:

A. Personal Growth:

To provide opportunities for the individual growth of the student through the development of acceptable personal and social values necessary in a productive society.

1. To provide a technical environment which motivates and stimulates individuals to discover their interests and develop personal and social responsibilities.

2. To assist in the development of positive attitudes toward safety.

3. To assist in the development of positive attitudes toward conservation and environment.

4. To assist in the development of consumer literacy.

B. Career Exploration:

To provide students with experiences which will assist him or her in making realistic career choices.

1. To provide students an opportunity, within a technical environment to become acquainted with the general occupational characteristics of a variety of career fields.

2. To relate their own interests, abilities, likes, dislikes and values to several career fields.

C. Occupational Skills:

To develop basic competencies, integrating cognitive and psychomotor skills related to families of occupations.

1. To provide safe exploratory experiences in the use of tools, energy, equipment and materials appropriate to various technologies prevalent in a productive society.

2. To develop an understanding of the interrelationships of various technologies.

3. To provide a technical environment which permits students to synthesize their accumulated knowledge in the solution of practical problems, and to assist students to develop habits that will be conducive to the establishment of a safe environment.

INDUSTRIAL EDUCATION 12, 22, 32 PROGRAM

INTRODUCTION

The Industrial Education 12, 22, 32 program is a series of modules which develop competencies leading to six different career fields.

Entry into a career field may be gained by taking one of several introductory courses. These are:

1. the "12" course designated for each major, or
2. two modules from the Industrial Education "10, 20, 30" series related to the anticipated major, or
3. one half of a "12" course. The other half would be another half "12" or a module from the "10" program. The course would be recorded as Industrial Education "10".

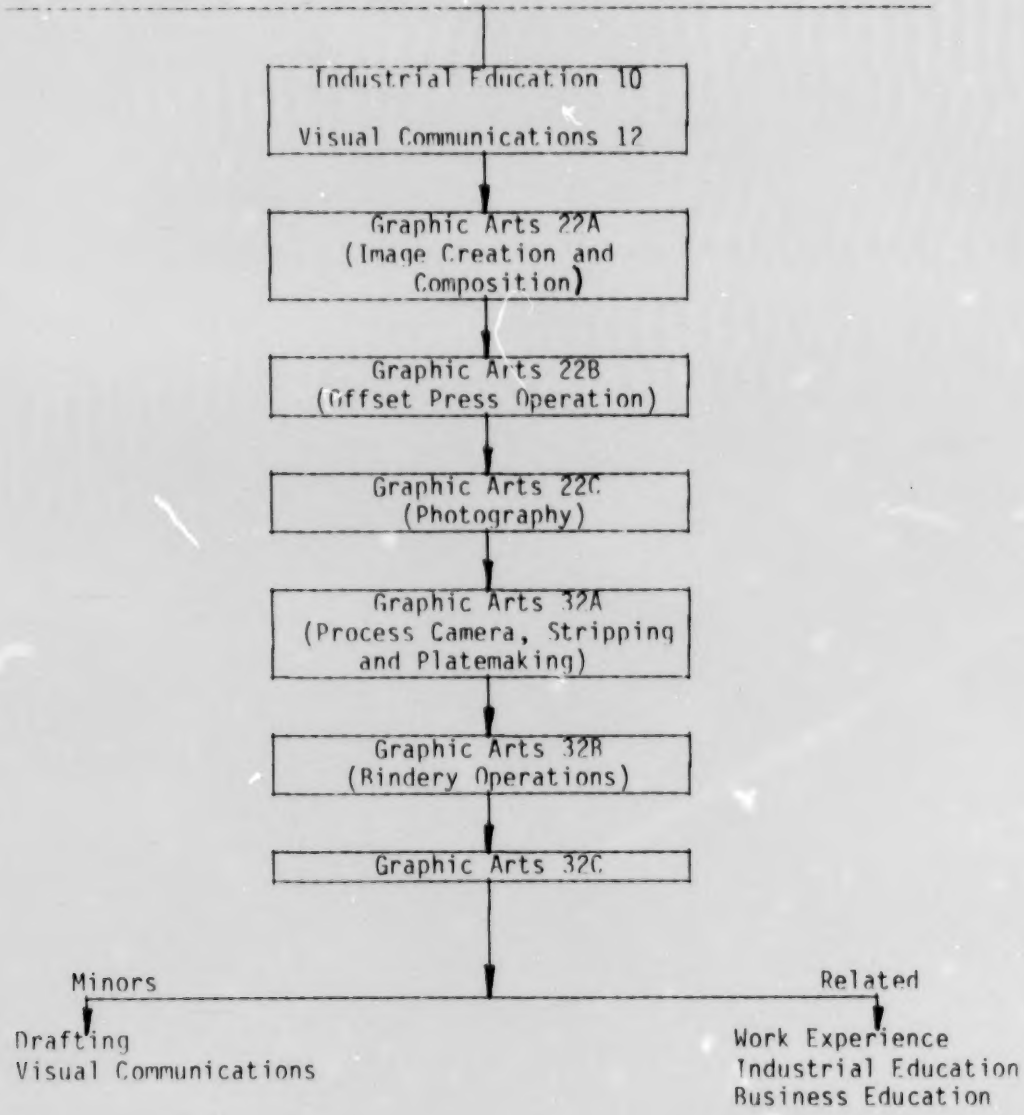
Following the introductory course the student may advance to the major area of study by selecting any number of five credit modules from the courses designated as "22" or "32". The scheduling and sequencing of the modules is the responsibility of the local school personnel but must be in accordance with the regulations pertaining to prerequisites.

A student registered in a second or third level course ("22" or "32") is regarded as taking a major in that course area. Having established a major the student may select courses designated as minors and in this way broaden his/her practical skill base in a career field or even several career fields. However, students must complete all the preceding modules in a major series (usually six) before taking the 32C module (exception: Beauty Culture).

CAREER FIELD

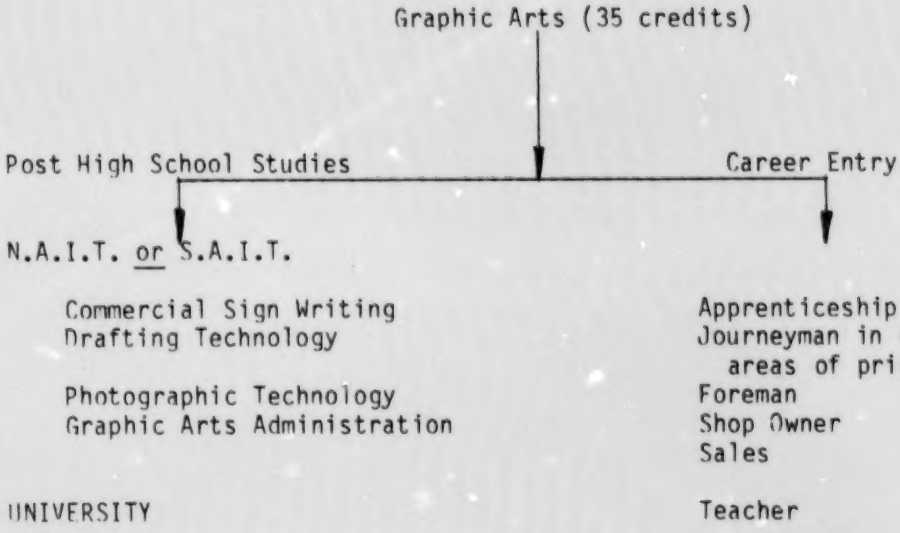
GRAPHIC COMMUNICATIONS

Graphic Arts



CAREER OPPORTUNITIES

Students taking all or part of the Graphic Arts program may look forward to the following career opportunities.



VISUAL COMMUNICATION 12

COURSE CONTENT

VISUAL COMMUNICATIONS 12 (5 CREDITS)

INTRODUCTION

Visual Communications 12 is the first module in the graphic communications field and allows students to advance to one of three majors: Drafting, Graphic Arts and Visual Communications.

OBJECTIVES

The objectives of the Visual Communications 12 course are:

1. To provide a practical environment which will enable a student to make a more realistic assessment of his/her interests and aptitudes.

2. To develop basic knowledge, understanding and appreciation of graphic communication materials and processes.

LEARNING RESOURCES

*Broekhuizen, R.J., Graphic Communications, McKnight Publishers, Latest Edition.
*Cogoli, J.E. Photo Offset Fundamentals, McKnight Publishers, 1973.
Delmar Publishers Inc., Printing Layout and Design, Delmar Publishers.
Hird, K.F. Understanding Graphic Arts, Gage Publishing Co., 1982.
Navy Training Course, Lithographer 3 and 2, U.S. Government Printing Office, Washington.
Epstein, Samuel and David W. Dearmond, How to Develop, Print and Enlarge Pictures, Grosset and Dunlap, New York, 1970.
McMurtrie, Douglas C. The Book: The Story of Printing and Bookmaking Oxford University Press Toronto, Ontario.
Reddick, Dewitt C., Journalism and the School Paper, D.C. Heath and Co., Boston, Mass.
Rowland, Kert, Learning to See.

Recommended Periodicals

Canadian Printer and Publisher, MacLean-Hunter Co., Toronto, Ontario.
Industrial Arts and Vocational Education, The Bruce Publishing Col. Milwaukee, Misc.
School Shop, Prakken Publications, Ann Arbor, Michigan.

*Refers to prescribed learning resources.

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CONTENT SUMMARY

1. Introduction:

   - commercial art and graphic arts relationship
   - historical developments and tradition
   - relationship with industry
   - occupational information
   - safety

2. Image Creation:

   - basic drawing
   - composition and design
   - symbols
   - layout
   - typographic composition

3. Conversion Processes:

   - image conversion:

     - elements and principles of composition
     - photographic materials
     - camera types, function and techniques
     - developing and printing
     - silkscreen printing
     - process camera
     - platemaking

4. Production Processes:

   - presses
   - silkscreen stencils
   - materials

5. Finishing Processes:

   - bindery operations

TOPIC 1: INTRODUCTION VGA12

GENERALIZATION: A meaningful foundation is necessary for a successful and safety conscious vocation in the career field of Graphic Communications.

CONCEPTS/SUBCONCEPTS	LEARNING TASKS	HOURS	REFERENCES
	The student will:		
1. Commercial Art and Graphic Arts:			
- relationship	- discuss the relationship among the Graphic Communication career fields		AB Dick Graphic Communication Film Strip
2. Historical Development of the Traditions and Technology	- discuss the significant historical events related to Commercial Art and Graphic Arts		"Graphic Communications - We Used to Call it Printing" 16 mm Film
3. Relationship with Industry	- describe the relationship between Graphic Arts and industry		
4. Occupational Information	- discuss the career opportunities related to the Graphic Communications field		"Ideas Won't Keep" Slide/tape, Kodak
5. Safety	- demonstrate safe operation of equipment and discuss safe practices for equipment and materials in the Graphic Arts area		

NOTES:

TOPIC 2: IMAGE CREATION VGA12

GENERALIZATION: Image creation is a process of translating ideas into meaningful visual symbols to meet the needs of the customer.

CONCEPTS/SUBCONCEPTS	LEARNING TASKS	HOURS	REFERENCES
1. Basic Drawing:	The student will:		
- experimental drawing	- create spontaneously, imaginative free-forms and composition involving non-objective and objective material in a variety of techniques and media without preliminary sketching; include: freehand borders with continuous pencil line, crossing the shape with parallel lines, diagonals, etc.; experiment with "s" shapes, circles, leaf or free-forms, etc.		
- constructive drawing	- draw accurately in line the four basic forms, cone, cube, cylinder and sphere, in a way that demonstrates an understanding of the construction of these forms; include: basic forms freehand in line with construction and hidden lines in color or dotted line - draw accurately in tone the four basic forms in a way that describes the volume of these forms, an understanding of the medium used and the principles of light and shadow; include: groupings of basic forms against contrasting backgrounds with a variety of light sources; use a variety of media and techniques such as charcoal, conte, wash, pen and ink, etc.		

TOPIC 2: IMAGE CREATION (continued) VGA12

CONCEPTS/SUBCONCEPTS	LEARNING TASKS	HOURS	REFERENCES
- expressive drawing	- given various stimuli, interpret a variety of ideas or concepts in terms of design or pictorially; this might include: interpreting pictorially or with a design, poetry or prose portraying a particular mood or emotion - interpret in stylized fashion and/or representationally, a variety of subject matter such as still life, landscape, plant forms and other natural and man-made objects using a variety of media and techniques; this might include: - outdoor sketching - illuminated still life compositions - detailed drawings of objects and textures - represent the human figure in a variety of poses through the use of rapid observation and careful study using a variety of techniques and media; this might include: - drawing rapid gesture poses, group poses, flash poses, moving poses etc. - demonstrate an understanding of the basic proportions of the human figure and represent these accurately - draw mass or volume studies using broad media such as: - charcoal - conte - wash		

TOPIC 2: IMAGE CREATION (continued) VGA12

CONCEPTS/SUBCONCEPTS	LEARNING TASKS	HOURS	REFERENCES
	- represent various animal forms in a variety of styles using various techniques and media		
2. Composition and Design: - elements	- create designs using one or more of the design elements in a way that demonstrates an understanding of the function and expressive qualities of the elements; consider elements such as: - line - direction - size - value - texture - color designs could include: - variety of lines in various techniques - texture collages - cut out shapes in different values or colors to create design		
	- through various means show the ability to recognize design in nature, man-made and natural objects, architecture, etc.		
- principles	- organize the elements of design according to design principles to create an aesthetically sound composition		
- color theory	- demonstrate an understanding of the dimension of color, hue, value and chroma as related to human perception and emotion		

NOTE:

TOPIC 2: IMAGE CREATION (continued) VGA12

CONCEPTS/SUBCONCEPTS	LEARNING TASKS	HOURS	REFERENCES
	- paint a value scale and a color wheel consisting of primary, secondary and tertiary hues and various chromas of these - demonstrate knowledge of basic color schemes such as; complementary, analogous and monochromatic, through assignments such as: - color schemes from magazines - matching colors in paint and identifying them - planning a color scheme for a room		
3. Symbols: - lettering	- collect samples of various styles of lettering to demonstrate a knowledge of the origins and history of the alphabet and basic styles of lettering - letter accurately a basic gothic alphabet with "B" style speedball pen and basic manuscript alphabet with "C" style speedball pen in conformity with standards set out in a lettering guide - letter accurately a basic gothic alphabet with a lettering brush - using the proper drafting tools, construct built-up lettering for reproduction		

NOTES:

TOPIC 2: IMAGE CREATION (continued) VGA12

CONCEPTS/SUBCONCEPTS	LEARNING TASKS	HOURS	REFERENCES
- English for printers	- given three paragraphs of copy, demonstrate an understanding of the rules of hyphenation, punctuation and spelling		
- elements of proofreading	- correctly proofread copy using proofreading symbols, in order to assure neat and accurate composition - use a video display terminal if the unit is available to proofread and make necessary corrections		
- basic type styles and anatomy	- correctly identify the basic type-styles and the identifying features of each style; student should be aware of the history of type, origin of the alphabet, invention of type		
4. Layout	- analyze existing advertisements to demonstrate a knowledge of composition, design, type and lettering, and redesign them in conformity with the principles of design - create abstract pictorial advertisement with heading, sub-heading, picture, text and signature - create a neat, well-spaced and aligned camera-ready layout from a rough dummy or a comprehensive sketch		

NOTES:

TOPIC 2: IMAGE CREATION (continued) VGA12

CONCEPTS/SUBCONCEPTS	LEARNING TASKS	HOURS	REFERENCES
5. Typographic Composition: - mechanical and photo	- compose error-free columns and headings of type by photo mechanical means, using the tools and equipment found in the various visual communication laboratories, to the degree of competence determined by the instructor		
- justification	- given a pre-determined piece of copy, set a page of justified type, either by photo or by mechanical equipment; student will be aware of and be able to apply the rules of straight matter composition regarding word, letter and line spacing		
- measurement	- accurately apply the printer's system of measurement to all phases of assignments given within the Graphic Arts area; this includes tools, equipment, spacing, materials and type		

NOTES:

TOPIC 3: CONVERSION PROCESSES VGA12

GENERATION: Symbols and design elements are converted to reproducible elements which can be assembled into a form to facilitate efficient reproduction and dissemination of visual information.

CONCEPTS/SUBCONCEPTS	LEARNING TASKS	HOURS	REFERENCES
	The student will:		
1. Image Conversion:	- demonstrate a knowledge and understanding of the elements and principles of composition through the results achieved in photography assignments; these elements and principles include harmony, proportion, balance, rhythm, simplicity, centre of interest, major and minor motif, framing, base-line, lines, color, depth of field and light (natural and artificial)		
- elements and principles of composition			
- photographic materials	- given the necessary information, identify the following photographic materials: film, polycontrast filters, paper-grades and surfaces and chemicals		
	- demonstrate the ability to use such materials by completing assigned projects		
- camera types, function and techniques	- correctly operate adjustable cameras and understand the functions of the instrument and the techniques employed when capturing an image in still life or portraiture, such as: filters, depth of field, varying shutter speeds, varying apertures and double exposure for a desired effect		

NOTES:

TOPIC 3: CONVERSION PROCESSES (continued) VGA12

CONCEPTS/SUBCONCEPTS	LEARNING TASKS	HOURS	REFERENCES
- developing and printing	- produce good average contrast films and prints and display an understanding of contact printing, enlarging and the chemical processes used in developing film and paper		
- silkscreen printing	- make stencils by using lacquer stencil and spatter painting processes		
- process camera	- demonstrate a knowledge of the process camera by making good line shots of assignments in Graphic Arts		
	- correctly strip, opaque and mask negatives in preparation for platemaking		
- platemaking	- make the various kinds of plates including direct image masters, photographic, electrostatic, and demonstrate an understanding of the process by which each type of plate is produced		

NOTES:

TOPIC 4: PRODUCTION PROCESSES VGA12

GENERALIZATION: Distribution of reproducible visual elements must be carried out through the use of rapid, economic, accurate, reliable production processes in order to meet societal needs.

CONCEPTS/SUBCONCEPTS	LEARNING TASKS	HOURS	REFERENCES
	The student will:		
1. Presses:	- select the proper inks and papers for jobs which are being produced on the offset press		
- basic operation of offset	- use the correct procedures for setting the offset press, with attention to: - fountain solution - paper guides and feed mechanism - impression cylinder - delivery system		
- other	- operate and produce jobs on the following machines, if available: - spirit duplicator - Ditto - Zerox		
2. Silkscreen Stencils	- produce posters and other assignments, using type and illustrations, from stencils using: - paper - lacquer films - photographic silkscreening materials		

NOTES:

TOPIC 4: PRODUCTION PROCESSES (continued) VGA12

CONCEPTS/SUBCONCEPTS	LEARNING TASKS	HOURS	REFERENCES
3. Materials:			
- paper	- choose paper and card stock suitable for any given assignment and cut large sheets of stock to produce maximum usage with minimum waste - discuss paper weights and basic paper sizes		
- inks	- discuss the characteristics of the different kinds of inks used in the Graphic Arts area		

NOTES:

TOPIC 5: FINISHING PROCESSES VGA12

GENERALIZATION: Visual information is distributed in a convenient, orderly, durable form to meet the needs of the consumer.

CONCEPTS/SUBCONCEPTS	LEARNING TASKS	HOURS	REFERENCES
	The student will:		
1. Bindery Operations:			
- assembly	- collate, fold and jog printed materials		
- binding	- bind materials in a book form by correctly: - stitching - padding - cerloxing - stapling		
- trimming	- safely operate a manual or mechanical paper cutter in order to trim the rough edges off the finished printed work		
- laminating	- correctly operate a laminating press in order to make the printed image on some assignments more durable		

NOTES:

GRAPHIC ARTS 22A

COURSE CONTENT

GRAPHIC ARTS 22A (5 CREDITS)
(Image Creation and Composition)

INTRODUCTION

Graphic Arts 22A follows naturally from the introductory courses, Industrial Education 10 or Graphic Arts 12, and provides the basis for later work in Graphic Arts.

OBJECTIVES

The objectives of the Graphic Arts 22A module are:

1. To provide a vehicle whereby skills and competencies are gained in areas of image creation.

2. To provide the student with opportunities to work with a variety of composition processes.

LEARNING RESOURCES

*Cogoli, J.E. Photo Offset Fundamentals, McKnight Publishers, 1973.

*Broekhuizen, R.J., Graphic Communications, McKnight Publishers, Latest Edition.

Delmar Publishers Inc., Printing Layout and Design, Delmar Publishers.

Hird, K.F. Understanding Graphic Arts, Gage Publishing Co., 1982.

Navy Training Course, Lithographer 3 and 2, U.S. Government Printing Office, Washington.

*Refers to prescribed learning resources.

CONTENT SUMMARY

1. Introduction:

   - history and evolution of printing
   - safe operation of tools and equipment
   - career orientation

2. Image Creation

   - layout and design
     - advertising layout
     - newspaper layout
     - magazine layout
     - art services

   - image assembly
     - pasteup
     - keyboard composition
     - ruling/scribing

   - typesetting
     - mechanical
     - photo-keyboard

   - typography
   - imposition
   - basic typing

TOPIC 1: INTRODUCTION VGA22A

GENERALIZATION: A meaningful foundation is necessary for a successful and safety conscious vocation in the career field of Graphic Communications.

CONCEPTS/SUBCONCEPTS	LEARNING TASKS	HOURS	REFERENCES
	The student will:		
1. History	- relate orally or in essay form, the evolution of the printing industry		
2. Safety	- make a written analysis and/or give a practical demonstration relative to the safe operation of equipment and handling of materials within the Graphic Arts laboratory		
3. Orientation	- make a written outline of his/her specific vocational goals		

NOTES:

TOPIC 2: IMAGE CREATION VGA22A

GENERALIZATION: Ideas may be translated into meaningful visual symbols to meet the needs of the customer.

CONCEPTS/SUBCONCEPTS	LEARNING TASKS	HOURS	REFERENCES
	The student will:		
1. Layout and Design:			
- general layout	- create layouts of letterheads, brochures, business cards and various printing jobs		
- advertising layout	- complete a layout to the teacher's satisfaction, from an assigned idea, showing all preliminary work including thumbnail, rough layout and dummy; product must include the basic elements of an advertisement		
- newspaper layout	- create a neat, well planned newspaper, to the teacher's satisfaction, with special attention to size and placement of heads, photos, ads, straight matter and features; (spelling and grammar must be carefully checked)		
- magazine layout	- create a different, complete two-page spreads for a magazine, using several different layout styles while applying all the rules and principles of good layout and design		
- art services	- demonstrate the ability to use an art service		

NOTES:

TOPIC 2: IMAGE CREATION (continued) VGA22A

CONCEPTS/SUBCONCEPTS	LEARNING TASKS	HOURS	REFERENCES
- tools	- correctly use tools common to the graphics industry in all phases of each assignment		
2. Image Assembly:			
- pasteup	- assemble to the teacher's satisfaction, brochures, spreads, and other printing products, using previously completed layouts as a guide, previously set type, windows or PMTs as elements, including the use of wax and/or rubber cement; emphasize accuracy as well as speed		
- keyboard composition	- compose, from copy, using a video screen, if available, jobs including a variety of type sizes and spacing		
- ruling	- create camera-ready rule forms to include vertical and horizontal rules of 1 point to 4 point thickness using a ruling type pen		
- scribing	- scribe rules on a negative both horizontal and vertical, using scribing knives		
3. Typesetting:			
- mechanical	- using strike on adhesive, template and free-hand methods, set a variety of type sizes and styles justified and unjustified		

NOTES:

TOPIC 2: IMAGE CREATION (continued) VGA22A

CONCEPTS/SUBCONCEPTS	LEARNING TASKS	HOURS	REFERENCES
- photo-keyboard	- set error free straight matter, display copy and tabulation, using auto and manual devices, in a range of typesetting assignments		
4. Typography	- demonstrate his or her knowledge of type classification and uses of each by choosing correctly the size, family, group, weight and width of type for each printing job assigned throughout the course		
5. Imposition	- correctly layout as a pasteup camera-ready, or strip to plate-ready, a flat to include up to 16 pages of one signature and use the method necessary for whatever job assigned by the instructor		
6. Basic Typing	- be able to type 40 words or more in 2 minutes, within 4 errors on alphabetic copy, by touch		Typing 300, Volume One Rowe, Lloyd Winger McGraw-Hill Ryerson

NOTES:

GRAPHIC ARTS 22B

COURSE CONTENT

GRAPHIC ARTS 22B (5 CREDITS)
(Basic and Advanced Offset Press Operation)

INTRODUCTION

This course follows naturally the introductory course in Graphic Arts and should be taught in conjunction with Graphic Arts 22A and 22C.

OBJECTIVES

The objectives of the Graphic Arts 22B module are:

1. To provide the student with the opportunity to gain saleable skills in the operation of various offset printing presses.
2. To teach the student proper handling and foremost safe operation of potentially dangerous equipment.
3. To give the student the opportunity to understand and practise basic maintenance.

LEARNING RESOURCES

*Broekhuizen, R.J., Graphic Communications, McKnight Publishers, Latest Edition.

Hird, K.F. Understanding Graphic Arts, Gage Publishing Co., 1982.

*Refers to prescribed learning resources.

CONTENT SUMMARY

1. History

2. Safety

3. Maintenance

   - wash up
   - cleaning dampeners
   - deglazing rollers and blanket
   - replacing dampeners
   - setting dampeners and ink rollers

4. Preparation for Operation

   - feed system
   - impression segment
   - delivery system
   - moisture system and inking system
   - changing blanket

5. Press Operation

   - various masters, stock and sizes
   - black, no registration
   - single color registration
   - single color registration on different stocks
   - multi-color registration

6. Inks and Their Properties

   - quick setting
   - stay open
   - process color
   - mixing colors
   - additives and dryers
   - career orientation
   - career opportunities

TOPIC 1: HISTORY VGA22R

GENERALIZATION: A knowledge of the historical development of printing presses is beneficial to the understanding of today's complex printing equipment.

CONCEPTS/SUBCONCEPTS	LEARNING TASKS	HOURS	REFERENCES
1. The History Development of Printing Presses	The student will: - upon receiving appropriate instructions and reference material, be able to explain the development of the printing press from hand operated, to automatic sheet fed, to high speed web fed		

TOPIC 2: SAFETY VGA22R

GENERALIZATION: Safety precaution and due respect for equipment is an essential ingredient for safe operation and minimizing risk.

CONCEPTS/SUBCONCEPTS	LEARNING TASKS	HOURS	REFERENCES
1. Safety - precautions and attitudes	The student will: - after receiving instructions on safety procedures and proper operation of equipment, the student must display his/her knowledge through continued safe operating practices		

NOTES:

TOPIC 3: MAINTENANCE VGA22B

GENERALIZATION: Basic maintenance of the equipment is the key to successful operation.

CONCEPTS/SUBCONCEPTS	LEARNING TASKS	HOURS	REFERENCES
1. Maintenance:	The student will:		
- press wash up	- show his/her expertise by being able to wash up the press using different methods, such as: - wash up tray - blotting sheets - take out rollers		
- cleaning dampeners	- wash the dampeners using correct procedures and materials		
- deglazing rollers and blanket	- correctly deglaze rollers and blanket		
- replacing dampeners	- correctly replace dampeners		
- setting dampeners and ink rollers	- set correctly the dampeners and ink rollers		

NOTES: Taking into consideration the complexity of equipment maintenance, this unit does not attempt to cover all equipment maintenance. It does, however, include the basic daily maintenance necessary to keep the equipment operable.

TOPIC 4: PREPARATION FOR OPERATION VGA22B

GENERALIZATION: Detailed preparation of any printing press prior to operation is of the utmost importance and its successful operation is essential to trouble free printing.

CONCEPTS/SUBCONCEPTS	LEARNING TASKS	HOURS	REFERENCES
1. Preparation for Operation:	The student will:		
- feed system	- set up the feed system of the press with attention to: - feeder guides - sheet eliminator - feeder tapes - feeder roller - paper height - blow and suction - register or side guide		
- impression segment	- adjust the impression cylinder and feed roller relative to the thickness of the paper		
- delivery system	- correctly set the delivery system		
- moisture system and inking system	- correctly set the ink fountain ensuring the right amount of ink - use and mix the correct fountain solution ensuring a correct balance between water and ink		
- changing blanket	- identify the need for changing the blanket, change blankets and fix low spots on the blanket		

NOTES:

TOPIC 5: PRESS OPERATION VGA22B

GENERALIZATION: Excellence in press operation requires long and continued practice.

CONCEPTS/SUBCONCEPTS	LEARNING TASKS	HOURS	REFERENCES
	The student will:		
1. Press Operation:			
- masters	- properly fasten and correctly treat the different masters: - paper - electrostatic - metal		
- printing black, no registration	- using the different masters, print with a reasonable degree of competency single color on a bond stock		
- single color with registration	- using different masters, print with proper registration a single color on different stock, such as: - bristols - envelopes - covers		
- multicolor registration	- using different masters, print with proper registration multi-colors on different stocks and sizes		

NOTES: With each subsequent step, the degree of complexity increases and it follows naturally that the student should have completed successfully the preceding task.

TOPIC 6: INKS AND THEIR PROPERTIES VGA22B

GENERALIZATION: Today's modern technology utilizes many inks having different characteristics.

CONCEPTS/SUBCONCEPTS	LEARNING TASKS	HOURS	REFERENCES
	The student will:		
1. Inks and Their Properties:	- make the correct choice of ink for jobs and discuss the most important qualities for inks, such as:		
- quick setting - stay open - process colors	- quick setting - stay open - process colors		
- mixing colors	- match a given color, reasonably closely		
- additives and dryers	- discuss that varnishes, dryers and thinners can be added to the ink, and explain when to use some of these additives		
2. Career Orientation	- research careers related to the Graphic Communications field and list specific qualifications required for entry to named careers		
3. Career Opportunities	- study employment opportunities available for Graphic Arts students		

NOTES:

GRAPHIC ARTS 22C

COURSE CONTENT

GRAPHIC ARTS 22C (5 CREDITS)

INTRODUCTION

The Graphic Arts 22C module will give students the opportunity to learn about different types of cameras, properties and development of light sensitive materials, and basic procedures in the operation of the enlarger. Emphasis will be placed on the quality of the finished print.

OBJECTIVES

The objectives of the Graphic Arts 22C module are:

1. To teach the student the correct use and operation of photographic equipment and materials.
2. To help the student learn the fundamentals of good composition.
3. To help the student develop the ability to present prints for display.

LEARNING RESOURCES

*Kodak, Photography Explorations, Eastman Kodak, Latest Edition
Bailey, A. Color Photography, Random House Publishers.
Davis, Phil Photography, W.C. Brown, 4th Edition 1982.
Craven, George Object and Image: Introduction to Photography, 2nd Edition, Prentice-Hall Inc. 1982.
Frair, J. and Ardoin, B. Effective Photography, Prentice-Hall Inc. 1982.
LaCour and Lathrop Photo Technology, American Technical Society.
Swedlund, Charles Photography: A Handbook of History, Materials, and Processes, Holt, Rinehart and Winston, 1981.
Upton, Barbara and John Photography: Adapted from the Life Library of Photography, Little Brown and Co., 1981.
Kodak Black and White Darkroom Data Guide, Eastman Kodak.
Kodak Color Data Guide, Eastman Kodak, 1980.

*Refers to prescribed learning resources.

CONTENT SUMMARY

1. Safety
   - safe operation of tools and equipment
   - unsafe acts and unsafe conditions
   - accident reports
   - compensation
   - first aid
   - safety program

2. Photography (Black and White - Basic)
   - elements of photographic composition
   - types of photography
   - camera types and features
   - shutters, aperture, exposure
   - lenses
   - film structure and types
   - chemicals, times, processing
   - contact and projection printing
   - finishing

3. Photography (Black and White - Advanced)
   - review of elements of composition
   - photo story
   - lighting
   - camera handling and operation
   - lenses and their use
   - shutters and aperture
   - electronic flash
   - filters and filtration
   - light sensitivity of films
   - color sensitivity of films
   - exposure meters
   - photographic exposure
   - photographic processing
   - print permanency
   - enhancement
   - mounting
   - special effects

4. Color Photography
   - exposure of color slides and color negatives
   - color temperature
   - color range
   - flash exposure
   - portraiture
   - camera adjustment
   - lenses
   - slide copying/slide tape presentation
   - color, exposure and processing
   - color permanency
   - print characteristics
   - finishing

TOPIC 1: SAFETY VGA22C

GENERALIZATION: The practice of safety is essential in all laboratory activities.

CONCEPTS/SUBCONCEPTS	LEARNING TASKS	HOURS	REFERENCES
	The student will:		
1. Safe Operation of Tools and Equipment	- operate safely tools and equipment such as: - hand tools - photographic enlarger - lighting equipment		
2. Unsafe Acts and Unsafe Conditions	- discuss the hazards associated with: - photographic chemicals - photographic lights - use correct protective equipment and apparel at all times		
3. Accident Reports	- explain the purpose and use of accident report forms and report all accidents		
4. Compensation	- explain the function of and benefits available under the Workers' Compensation Act		
5. First Aid	- attend to all minor injuries and practise minor first aid		
6. Safety Program	- participate in the prescribed safety program of the lab and/or school system		

TOPIC 2: PHOTOGRAPHY (BLACK AND WHITE - BASIC) VGA22C

GENERALIZATION: The camera can be used skillfully in the capture of images which may be reproduced and distributed in a convenient and durable form.

CONCEPTS/SUBCONCEPTS	LEARNING TASKS	HOURS	REFERENCES
	The student will:		
1. Image Creation	- explain elements of photographic composition, such as:		
- composition	- rule of thirds - balance (formal and informal) - harmony - rhythm - symmetry - proportion - simplicity - centre of interest - framing - pattern - texture - line		
- types of photography	- discuss the following categories of photographic images: - portraiture - photojournalism - candids - still life - scenic - micro/macro - copying - industrial/commercial - artistic		

TOPIC 2: PHOTOGRAPHY (BLACK AND WHITE - BASIC) (continued) VGA22C

CONCEPTS/SUBCONCEPTS	LEARNING TASKS	HOURS	REFERENCES
2. Camera Types and Features:	- discuss the operation and indicate the path taken by light striking the film in the following cameras: - simple box - single lens reflex - twin lens reflex - range finder - view camera		
- shutters	- describe the types of shutters used on different cameras		
- aperture	- explain aperture sizes for different f-stops		
- camera use	- demonstrate handling techniques; such as: - film loading and unloading - use of light meter - changing of aperture size - adjusting shutter speeds - removal/attachment of lenses - focusing		
3. Lenses	- define focal length using a diagram		
	- discuss the use of different lenses and filtration on cameras		
	- list the three major types of lenses and indicate how angle of view and depth perception is altered in each type		
4. Films:			
- structure	- explain the composition of a Black and White film		

NOTES:

TOPIC 2: PHOTOGRAPHY (BLACK AND WHITE - BASIC) (continued) VGA22C

CONCEPTS/SUBCONCEPTS	LEARNING TASKS	HOURS	REFERENCES
- ISO/ASA	- explain the relationship between film light sensitivity and the ISO/ASA scale		
- types	- list the color sensitivity and safelight colors for each of the following films: - orthochromatic - panchromatic - B + W infrared		
5. Chemicals:	- prepare chemicals for film and print processing		
	- list correct sequence for using the chemicals in print and paper developing		
	- describe how each chemical in the sequence affects the film emulsion		
- processing times	- demonstrate calculation of development time using processing guides and thermometer		
	- list processing times for other chemicals		
- processing	- correctly process black and white films		
- film handling	- demonstrate correct film handling techniques to prevent scratches, finger prints and other damage		

NOTES:

TOPIC 2: PHOTOGRAPHY (BLACK AND WHITE - BASIC) VGA22C
(continued)

CONCEPTS/SUBCONCEPTS	LEARNING TASKS	HOURS	REFERENCES
6. Printing:			
- contact and projection	- list the tools and equipment required for contact printing and enlarging - demonstrate ability to make adjustments on enlarger - demonstrate ability to correctly use a contact printer - demonstrate ability to correctly use a timer with enlarger and printer		
- papers	- discuss the types of photographic papers available, their characteristics and composition with attention to: - polycontrast - grades - bromides - surface textures - finishes - light sensitivity		
- developing	- use the correct sequence and observe correct processing time in print development		
- enlarging techniques	- describe two methods used for cleaning negatives - demonstrate the correct technique for focusing and cropping unwanted areas		

NOTES:

TOPIC 2: PHOTOGRAPHY (BLACK AND WHITE - BASIC) (continued) VGA22C

CONCEPTS/SUBCONCEPTS	LEARNING TASKS	HOURS	REFERENCES
	- demonstrate one technique for establishing aperture size and exposure times		
	- produce properly exposed and processed: - photograms - enlargements without filter - enlargements with filter		
7. Finishing:	- discuss the process and demonstrate how to: - wash prints - dry, ferrotype, mat finish, RC paper		
- spotting	- demonstrate the use of spotting dye and spotting pencils to remove white spots on prints		
- toners	- using the same negative produce prints and immerse in the following toners: - blue, yellow, red and green - rapid selenium - sepia - poly toner - brown		
- portfolio	- prepare a portfolio of prints		

NOTES:

TOPIC 3: PHOTOGRAPHY (BLACK AND WHITE - ADVANCED) VGA22C

GENERALIZATION: Photographic equipment and special darkroom techniques can be utilized in the translation of ideas into meaningful visual elements to meet the needs of a visually oriented society.

CONCEPTS/SUBCONCEPTS	LEARNING TASKS	HOURS	REFERENCES
	The student will:		
1. Elements of Composition	- explain elements of photographic composition such as: - rule of thirds - balance (formal and informal) - harmony - rhythm - symmetry - proportion - simplicity - centre of interest - framing - pattern - texture - line - contrast - light and color		
2. Photo Story	- compose a photo story of a complex idea		
3. Lighting	- collect examples of lighting techniques which use: - main/key - fill - background - highlights		

NOTES:

TOPIC 3: PHOTOGRAPHY (BLACK AND WHITE - ADVANCED) (continued) VGA22C

CONCEPTS/SUBCONCEPTS	LEARNING TASKS	HOURS	REFERENCES
	- practice posing a subject using modeling studio lights or flash portrait lighting to demonstrate the following types of lighting: - broad - loop - Rembrandt - split - Paramount - profile		
4. Camera Handling and Operation	- demonstrate camera handling abilities with attention to: - film loading/unloading - film advance - ISO/ASA indicator - light meter - aperture size - location of shutter - adjusting shutter speed - focal lengths of lenses - removal/attachment of lenses - shutter release - focusing techniques - depth of field scale/preview - proper camera handling techniques - infrared dot - flash synchronization terminals		
5. Lenses	- demonstrate the ability to use a wide variety of lenses and attachments - explain what is meant by the term, focal length, when discussing lenses		

NOTES:

TOPIC 3: PHOTOGRAPHY (BLACK AND WHITE - ADVANCED) (continued) VGA22C

CONCEPTS/SUBCONCEPTS	LEARNING TASKS	HOURS	REFERENCES
	- use one or more lenses or attachments while demonstrating a knowledge of focus, depth of field and exposure techniques - demonstrate the proper use and an understanding of: - extension tubes - extension bellows - lenses coupled with tele-converters - zoom lenses - macro lens - supplementary diopter filters		
6. Shutters	- demonstrate the ability to select a range of shutter speeds appropriate for subject movement, speed, direction and lenses		
7. Aperture	- demonstrate the ability to select an aperture size appropriate for the subject and composition		
8. Electronic Flash	- use electronic flash in: - manual mode - automatic mode		
9. Light, Filters and Filtration:	- sketch and label the electro-magnetic spectrum, clearly indicating the zone of visible light - draw a diagram of the major parts of the visible light spectrum showing adjoining areas		

NOTES:

TOPIC 3: PHOTOGRAPHY (BLACK AND WHITE - ADVANCED) (continued) VGA22C

CONCEPTS/SUBCONCEPTS	LEARNING TASKS	HOURS	REFERENCES
- light sources	- identify types of light sources such as: - daylight - tungsten		
- additive colors	- list the additive colors, the types of light sources and the new colors formed in combination		
- subtractive colors	- list the subtractive colors, the type of light source and filters and the new colors formed in combination		
- complementary colors	- demonstrate the ability to neutralize or enhance colors by using additive and subtractive colors		
- filtration	- state the rules of absorption and transmission of colors through filters and use complementary colored filters to neutralize or enhance colors		
10. Light Sensitivity of films	- discuss the magnified cross-section of a film - discuss the difference between films of various ISO/ASA ratings		
11. Color Sensitivity of Films	- demonstrate the ability to use a variety of different films and corresponding safelights with any of the following: - color blind print paper - ortho high contrast - panchromatic - B and W infrared		

NOTES:

TOPIC 3: PHOTOGRAPHY (BLACK AND WHITE - ADVANCED) (continued) VGA22C

CONCEPTS/SUBCONCEPTS	LEARNING TASKS	HOURS	REFERENCES
12. Exposure Meters	- demonstrate the ability to use incident and reflective light meters in several different lighting situations		
13. Photographic Exposure	- photograph a grey scale, a series of objects while varying the light intensity between highlight and shadow values on the object - process film, make prints and discuss the ability of the film to record the range of light and dark		
14. Photographic Processing: - chemicals	- list the processing chemicals in exact order and note the processing temperatures of the chemicals for films and prints - demonstrate the correct preparation of chemicals for selected processes		
- times and temperature	- calculate the appropriate times for the different chemicals taking into consideration: - temperature - number of previously processed films or prints		
- shelf life	- discuss shelf life and capacity rates of chemistry		
- push processing	- calculate the first developer processing time for film which has been pushed to increase effective ISO/ASA		

NOTES:

TOPIC 3: PHOTOGRAPHY (BLACK AND WHITE - ADVANCED) (continued) VGA22C

CONCEPTS/SUBCONCEPTS	LEARNING TASKS	HOURS	REFERENCES
- normal processing	- process film maintaining constant temperature and exact times - properly dry film and store negatives in envelopes		
- equipment	- demonstrate the correct use of the following equipment to make good prints: - contact print - enlarger - timer - grain focus finder - negative cleaner - safelights		
- film/paper	- discuss the following when selecting print paper to meet the needs of the project: - types of exposing - types of processing - types of film support or base - print characteristics, such as: - tone - surface - contrast - thickness - color		
- processing	- use processing techniques such as: - tray - tank - machine		

NOTES:

TOPIC 3: PHOTOGRAPHY (BLACK AND WHITE - ADVANCED) (continued) VGA22C

CONCEPTS/SUBCONCEPTS	LEARNING TASKS	HOURS	REFERENCES
15. Print Permanency	- process all prints to assure extended life by using the appropriate techniques and chemistry		
16. Enhancement	- use enhancement techniques such as: - toners - reducers		
17. Mounting	- use touch-up materials to repair prints before mounting, such as: - spotting dyes - pencils and charcoal - lacquer - use available equipment to mount prints		
18. Special Effects	- use the following techniques to improve the quality of prints: - burning and dodging - vignetting - solarization/sabattier effect - distortion - texturing - multiple printing		

NOTES:

TOPIC 4: COLOR PHOTOGRAPHY VGA22C

GENERALIZATION: The camera can be used skillfully in the capture of images in color which may be reproduced and distributed in a convenient and durable form.

CONCEPTS/SUBCONCEPTS	LEARNING TASKS	HOURS	REFERENCES
	The student will:		
1. Color Slides and Negatives	- use techniques of composition when exposing color slides and color negatives which create: - mood - movement - dimension		
	- compose a photo story		
2. Color Temperature	- discuss how to match the color temperature of studio lights to the proper film and/or filters		
3. Color Range	- discuss color range and the use of daylight and tungsten lighting		
4. Flash Exposure	- explain how to correctly use flash lighting with attention to: - color range - manual mode - automatic mode - synchronization - bounce flash - red eye		
5. Portraiture	- practise posing a subject using modeling studio lights or flash portrait lighting to demonstrate the following types of lighting:		

NOTES:

TOPIC 4: COLOR PHOTOGRAPHY (continued) VGA22C

CONCEPTS/SUBCONCEPTS	LEARNING TASKS	HOURS	REFERENCES
	- broad - loop - Rembrandt - split - Paramount - profile - expose portraits on color film and slide film		
6. Camera Adjustments	- demonstrate camera handling abilities with attention to: - film loading/unloading - film advance - ISO/ASA indicator - light meter - aperture size - location of shutter - adjusting shutter speed - focal lengths of lenses - removal/attachment of lenses - shutter release - focusing techniques - depth of field scale/preview - proper camera handling techniques - infrared dot - flash synchronization terminals		
7. Lenses	- demonstrate the ability to use a wide variety of lenses and attachments - explain what is meant by the term, focal length, when discussing lenses - use one or more lenses or attachments while demonstrating a knowledge of focus, depth of field and exposure techniques		

NOTES:

TOPIC 4: COLOR PHOTOGRAPHY (continued) VGA22C

CONCEPTS/SUBCONCEPTS	LEARNING TASKS	HOURS	REFERENCES
	- photograph a series of frames using color negative and color slide film		
8. Slide Copying	- demonstrate the ability to copy slides using color slide film and corrected light source		
9. Slide/Tape Presentation:	- plan a slide sequence to illustrate a short story		
- slides	- expose, process, and mount the slide sequence		
- audio	- demonstrate a knowledge of the procedure used in recording audio signals on a tape recorder		
	- record music and/or voice on a tape through the use of an available recorder		
- presentation	- synchronize audio and slides for presentation		
	- demonstrate proper presentation techniques for slide/tape showing		
10. Color:			
- light spectrum	- sketch and label the electromagnetic spectrum, clearly indicating the zone of visible light		
	- draw a diagram of the major parts of the visible light spectrum showing adjoining areas		

NOTES:

TOPIC 4: COLOR PHOTOGRAPHY (continued) VGA22C

CONCEPTS/SUBCONCEPTS	LEARNING TASKS	HOURS	REFERENCES
- sources	- identify types of light sources such as: - daylight - tungsten		
	- discuss the temperature of different light sources and estimate the value in ^{o} Kelvin		
- additive colors	- list the additive colors, the type of light source and filters and the new colors formed in combination		
- subtractive colors	- list the subtractive colors, the type of light source and filters and the new colors formed in combination		
- complementary colors	- demonstrate the ability to neutralize or enhance colors by using additive and subtractive colors		
11. Exposure:			
- filtration	- state the rules of absorption and transmission of colors through filters and use complementary colored filters to neutralize or enhance colors		
- color correction	- select the appropriate filter to match the light color source with the color sensitivity of film using the nomograph		
	- use a color meter to measure the color temperature of light sources and calculate the appropriate filters		

NOTES:

TOPIC 4: COLOR PHOTOGRAPHY (continued) VGA22C

CONCEPTS/SUBCONCEPTS	LEARNING TASKS	HOURS	REFERENCES
12. Films:			
- composition	- discuss the magnified cross-section of a color film stressing the emulsion or tripack arrangement		
	- discuss the difference between color slide film and color negative film		
- color sensitivity	- demonstrate the ability to use color correction filters for film and varying light sources		
	- demonstrate the ability to select the appropriate safe light for distance to film and time of exposure		
- light sensitivity rating	- demonstrate how different films of varying ISO/ASA change the clarity or resolution of image		
- push processing for slides	- demonstrate the ability to increase the ISO/ASA rating on a film and how to change the corresponding development time		
	- list one advantage and one disadvantage of push processing		
- film latitude	- demonstrate the ability of a film to capture a range of colors, hues and densities by exposing and developing a roll of slide film		

NOTES:

TOPIC 4: COLOR PHOTOGRAPHY (continued) VGA22C

CONCEPTS/SUBCONCEPTS	LEARNING TASKS	HOURS	REFERENCES
13. Processing Films:			
- chemicals	- list the processing chemicals in exact order and note the processing temperatures of the chemicals for the following processes: - E6 - C41 - K2		
	- demonstrate the correct preparation of chemicals for selected processes		
- times and temperatures	- calculate the appropriate times for the different chemicals taking into consideration: - temperature - number of previously processed films or prints		
- shelf life	- discuss shelf life and capacity rates of color chemistry		
- push processing	- calculate the first developer processing time for color slide film which has been pushed to increase effective ISO/ASA		
- normal processing	- process color slide and negative film maintaining constant temperature and exact times		

NOTES:

TOPIC 4: COLOR PHOTOGRAPHY (continued) VGA22C

CONCEPTS/SUBCONCEPTS	LEARNING TASKS	HOURS	REFERENCES
- film handling	- properly dry film, cut slides into frames and store negatives in envelopes		
14. Color Permanency	- list some techniques used to extend color permanency of slides, negatives and prints		
15. Printing:	- demonstrate the ability to use the color enlarger and and filtration of colors to within .05 values		
- enlargements	- use the following equipment for the exposure of color prints to ensure accurate, clear prints: - grain focus finder - negative cleaning agents - color analyzer		
- film/paper	- identify the differences between types of color prints		
- processing	- determine methods for processing color prints and correctly use methods such as: - tray - tube - drum - Ektaflex processor		
16. Print Characteristics	- discuss print characteristics with attention to: - color tone - surface texture - contrast - color saturation - base type		

NOTES:

TOPIC 4: COLOR PHOTOGRAPHY (continued) VGA22C

CONCEPTS/SUBCONCEPTS	LEARNING TASKS	HOURS	REFERENCES
- color correction	- demonstrate the ability to use correction factors when printing		
17. Finishing:			
- print mounting	- use low heat mounting process to mount prints		
- touch up	- use color spotting dyes to correct spots on prints		

NOTES:

GRAPHIC ARTS 32A

COURSE CONTENT

GRAPHIC ARTS 32A (5 CREDITS)
(Process Camera, Stripping and Plateworking)

INTRODUCTION

Graphic Arts 32A is designed to increase skill in the use of the Process Camera and improve techniques in stripping and platemaking. Graphic Arts 32A should be taken after completing a course at the "22" level.

OBJECTIVES

The objectives of the Graphic Arts 32A module are:

1. To provide the student with the opportunity to learn advanced skills and techniques in the use of the process camera, stripping and platemaking.

2. To develop a high degree of skill and accuracy in, the use of the process camera, stripping and platemaking.

LEARNING RESOURCES

*Cogoli, J.E., Photo Offset Fundamentals, McKnight Publishing, 1973.

*Broekhuizen, R.J. Graphic Communications, McKnight Publishing, Latest Edition.

Hird, K.F. Understanding Graphic Arts, Gage Publishing Co., 1982.

Navy Training Course Lithographer 3 and 2, U.S. Government Printing Office, Washington.

Kodak, Color Separation, Kodak.

Dupont, Contact Screen Story, Dupont.

*Refers to prescribed learning resources.

CONTENT SUMMARY

1. Process Camera

- line copy
- screened copy
- photo mechanical technique
- duotones
- stripping/masking
- platemaking
- color separation

TOPIC 1: PROCESS CAMERA VGA32A

GENERALIZATION: Symbols and design elements are converted photographically to reproducible elements which can be assembled into a form facilitating efficient reproduction and dissemination of visual information.

CONCEPTS/SUBCONCEPTS	LEARNING TASKS	HOURS	REFERENCES
	The student will:		
1. Line Copy	- produce line copy of prepared artwork and demonstrate an ability to reproduce copy of varying quality through different camera control variables.		
2. Screened Copy	- produce halftones using orthochromatic film and demonstrate control in achieving density or dot size within 5% in an acceptable negative		
3. Photo Mechanical Technique (PMT)	- produce line copy using the Photo-Mechanical Transfer Process (PMT) - identify the variables and demonstrate control in achieving acceptable results in producing halftones using the photo mechanical transfer process		
4. Duotones	- apply knowledge of halftone exposure and control in producing two contrasting negatives which when printed in different color inks can give the impression of color printing in an artistic manner		

NOTES:

TOPIC 1: PROCESS CAMERA (continued) VGA32A

CONCEPTS/SUBCONCEPTS	LEARNING TASKS	HOURS	REFERENCES
5. Stripping/ Masking	- layout masks and produce flats involving: - single or multiple negatives - combinations - step and repeat - multiple burn-ins - 2 or 4 page impositions - 4 color stripping (optional)		
6. Platemaking	- produce types of plates available in the shop to acceptable standards for press production with emphasis on quality and register		
7. Color Separation	- discuss the theory of light and color in printing or proofing process colors in various percentage screen combinations to achieve selected colors - discuss the principle of operation of a laser scanner		

NOTES:

GRAPHIC ARTS 32B

COURSE CONTENT

GRAPHIC ARTS 32B (5 CREDITS)
(Basic Bindery Operations and Finishing)

INTRODUCTION

Bindery operation and finishing are fundamental aspects of all Graphic Arts courses; in 32B the operation of various pieces of sophisticated equipment should be taught, realizing that all Graphic Arts shops have a limited scope of automated Bindery Equipment.

OBJECTIVES

The objectives of the Graphic Arts 32B module are:

1. To give the student saleable entry skills in the bindery field.
2. To teach the student safe and proper handling of all equipment.
3. To give the student the opportunity to learn about the diverse career choices possible in the bindery and printing field.

LEARNING RESOURCES

*Cogoli, J.E., Photo Offset Fundamentals, McKnight Publishing, 1973.

Hird, K.F. Understanding Graphic Arts, Gage Publishing Co., 1982.

Navy Training Course Lithographer 3 and 2, U.S. Government Printing Office, Washington.

*Refers to prescribed learning resources.

CONTENT SUMMARY

1. History

2. Safety

3. Papers:

   - fabrication
   - kinds
   - uses

4. Bindery Operations

   - cutting
   - jogging
   - folding
   - scoring and perforating
   - punching
   - stitching
   - collating and interleafing
   - padding - compound, NCR
   - binding

5. Packaging

   - service
   - industry

6. Related Operations:

   - laminating and dry mounting
   - embossing and verkotyping
   - mailing

7. Maintenance

8. Careers

TOPIC 1: BASIC BINDERY OPERATION AND FINISHING VGA32B

GENERALIZATION: An understanding of the development of bindery work as a traditional hand craft to the sophisticated binding equipment is beneficial to the learner as well as an understanding of the safe operation of the equipment and the materials commonly used in the process.

CONCEPTS/SUBCONCEPTS	LEARNING TASKS	HOURS	REFERENCES
	The student will:		
1. History	- discuss the development of bindery and finishing processes		
2. Safety	- demonstrate safe operating habits when using all binding and finishing tools, materials and equipment		
3. Papers:			
- fabrication	- explain the processes utilized in the production of pulp and paper		
- kinds	- be able to identify different kinds of paper, such as: - bonds - book (coated and uncoated) - bristol - cover stocks - miscellaneous - NCR papers - MacTac - text papers		
- uses	- select appropriate stock for a variety of printing jobs		

NOTES:

TOPIC 1: BASIC BINDERY OPERATION AND FINISHING (continued) VGA32R

CONCEPTS/SUBCONCEPTS	LEARNING TASKS	HOURS	REFERENCES
4. Bindery Operations:			
- cutting paper	- cut large sheets of stock to correct size, for use on presses, with a minimum of waste		
	- trim printed sheets		
- jogging	- jog paper correctly with or without a jogger		
- folding	- set up folder and fold paper of various sizes correctly		
- scoring and perforating	- set up equipment and correctly score and perforate sheets of different sizes		
- punching, cerloxing and rounding corners	- set up equipment and correctly punch, cut, coil and round corners of finished product		
- stitching	- set up equipment and correctly side and saddle stitch products with attention to correct length and tension of the stitch		
- collating and interleafing	- collate and interleaf manually or mechanically		
- padding	- assemble pads using padding compound or NCR fan apart adhesive		

NOTES:

TOPIC 1: BASIC BINDERY OPERATION AND FINISHING (continued) VGA32B

CONCEPTS/SUBCONCEPTS	LEARNING TASKS	HOURS	REFERENCES
- binding	- explain a variety of binding techniques, such as: - hand sewn - thermal		
5. Packaging:			
- service	- package printed jobs neatly for the customer		
- industry	- explain the packaging industry as it is operated in an industrial setting		
6. Related Operations:			
- laminating and dry mounting	- laminate or dry mount customer products		
- embossing and verkotyping	- explain the processes of embossing and verkotyping		
- mailing	- explain the various mailing systems		
7. Maintenance	- correctly maintain and adjust all bindery equipment		
8. Careers:			
- orientation	- discuss the occupations available in the bindery area and, if possible, participate in field trips to industrial plants engaged in the bindery processes		
- opportunities	- outline the career opportunities available: - locally - nationally		
	- list the educational requirements for entry to specified occupations		

NOTES: Most Graphic Arts labs have elementary collating equipment but interleafing will have to be done manually.

GRAPHIC ARTS 32C

COURSE CONTENT

GRAPHIC ARTS 32C (5, 10 CREDITS)

INTRODUCTION

The last module of the Graphic Arts sequence is open to students who have completed 30 credits or six modules in the major area.

The 125 hours of instruction time available in this module may be used to:

a. Provide greater depth to a module taken previously. Individual students, groups of students or whole classes may elect to study an area in more detail. This in-depth study could be image creation and composition, offset press operation, photography or any of the modules named in the Graphic Arts sequence.

2. Engage in actual Graphic Arts work or work study supervised by the Graphic Arts teacher as a coordinator and a journeyman on the job.